

What is claimed is:

1. A screw tip for an extruder screw for effecting mixing in an extruder comprising:

a substantially conical outside surface, and

at least one discontinuous fin protruding from the outside surface of the screw tip.
2. The screw tip of claim 1, wherein the screw tip includes a tip portion and an attachment portion, and wherein the fin extends substantially from a base of the tip portion to an apex of the tip portion.
3. The screw tip of claim 1, wherein each fin includes at least one slot which divides the fin into fin components.
4. The screw tip of claim 3, wherein the slots have a taper angle which forms a narrowing channel.
5. The screw tip of claim 3, wherein the screw tip includes a tip portion, and wherein the width of the slots is approximately between 6 – 10 percent of the length of the tip portion.
6. The screw tip of claim 5, wherein the screw tip includes a tip portion having length of between about 4 – 4 1/2 inches, and wherein the slots have a width of between about 0.3 – 0.4 inches.
7. The screw tip of claim 1, wherein the outer surface is smooth.
8. The screw tip of claim 1, wherein said at least one discontinuous fin has a curved sidewall portion.
9. The screw tip of claim 8, wherein a first pair of opposing fins include two fin slots which divide each fin of the first pair of fins into three fin components, and wherein a second pair of opposing fins include one fin slot which divides each fin of the second pair of fins into two fin components .

10. The screw tip of claim 1, wherein the outside surface of the screw tip has a slope of less than thirty degrees from a base portion of the screw tip to an apex of the screw tip.
11. The screw tip of claim 1, wherein each fin is helical in shape.
12. The screw tip of claim 1, wherein each fin is straight.
13. An extruder for extrusion of thermoplastic materials comprising:
 - a hollow barrel defining a feed channel;
 - at least one extruder screw rotatably mounted in the feed channel; and
 - at least one screw tip coaxially mounted on a respective extruder screw and having at least one discontinuous fin extending from a substantially conical outside surface.
14. The extruder of claim 13, wherein the fin includes at least one slot which divides the fin into fin components.
15. An extrusion process of the type by which a polymeric material is fed by a screw mixer through a feed channel to a die, the improvement comprising:
 - mixing a molten material with a rotating screw tip having a plurality of fins protruding from a substantially conical outside surface of the screw tip, at least one of said fins being discontinuous.
16. The process of claim 15 further comprising advancing the molten material through an adapter, wherein the adapter encloses the screw tip.
17. The process of claim 15, wherein the molten material is mixed by at least one slot on the fins of the screw tip.
18. The process of claim 15, wherein said molten material is subsequently formed into a building material.

19. The process of claim 18, wherein said building material is siding, decking, fence, rail, guard rail, plank, board, structural lumber, stair tread, riser, kick plate, pipe, window, framing, sill, jamb stile, track, roofing, flooring, decorative millwork, multi-grained stain appearance products, trim, soffit, or fascia materials.

20. The process of claim 15, wherein said molten material comprises a thermoplastic selected from the group of polyvinyl chloride, polyethylene, polypropylene polymers and copolymers.